

## LEOPOLD

## Letter

A NEWSLETTER OF THE LEOPOLD CENTER FOR SUSTAINABLE AGRICULTURE

VOL. 9 NO. 1 SPRING 1997

# Weed management: a delicate balance

By E. Anne Larson  
Communications specialist

Ask Doug Buhler how he came to be interested in weeds, and he recalls his childhood years on a Wisconsin dairy farm—and the hours spent pulling and whacking those yield-robbing, pasture-clogging pests. But over the years, this USDA-ARS weed scientist has developed a healthy respect for these adaptive plants. “Nowadays, I can’t help but admire their resilience,” Buhler says.

A curious attitude for a weed scientist charged with solving agriculture’s persistent weed management problems? Perhaps. But Buhler’s admiration offers the kind of “outside of the box” thinking that may lead to development of the next generation of weed management tools.

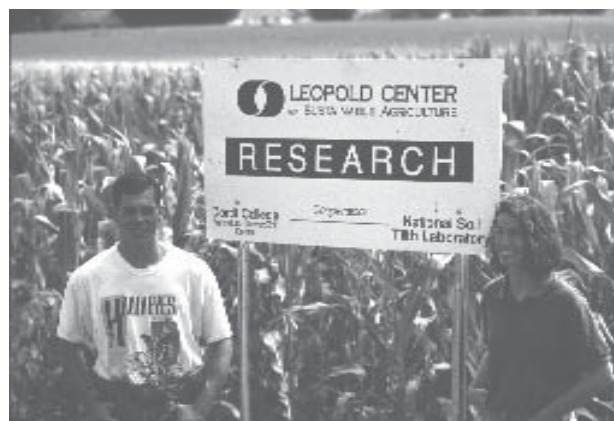
Buhler has been working with co-investigator Keith Kohler and research associate Madonna Foster at the National Soil Tilth Lab (NSTL) on a Leopold Center-funded project aimed at developing a smother crop alternative for weed management.

## Why smother crops?

Smother crops are nothing new. Fall-seeded smother crops have been used in the southern United States for many years. The term refers to a dense-growing crop that suppresses or stops the growth of other plants, especially weeds. For example, winter rye, vetches, and clovers have been used as smother plants in soybean and corn fields. Such crops can also reduce erosion, and they enhance fertility when tilled into the soil.

Sometimes, however, the smother crops themselves can become competitive problems, depleting soil moisture and requiring the use of herbicides for control. So Buhler and his team are studying the interactions among the smothering plants, crops, and weeds.

A combination of pressures—environmental concerns, cost containment, and herbicide-resistant weeds—has fueled producers’ interest in new weed control measures. By broadening the array of weed management options available, Buhler hopes that producers can manage more effectively. In fact, he assiduously avoids the term “weed control.” He sees weeds as just one piece of a complex



Dordt College and the ISU agronomy farm are sites of the Leopold Center-funded smother crop research. Researchers have found that the Dordt farm’s corn-soybean-alfalfa rotation on manured soils has provided much higher success in establishment of smother crop species. (Photo courtesy of National Soil Tilth Laboratory)

picture that involves soil quality, fertility, rotations, and cropping systems.

“Weeds have a great ability to adjust to environmental changes,” Buhler notes, citing the example of the current explosion of waterhemp populations in soybeans. The weed, which has become a major soybean pest, seems resistant to many herbicides. But Buhler says that the picture is much broader than just the herbicide. Current management and tillage practices have created a more favorable environment for waterhemp.

Buhler believes a successful smother crop system must have at least three key characteristics: flexibility, consistency, and adaptability. Toward that end, the NSTL researchers are assessing several forage-type plants

## SMOTHER CROPS

(continued on page 8)

## INSIDE

<i>Anniversary event planned</i>	2
<i>Farms can weather change</i>	3
<i>Sheep parasite control</i>	4
<i>What motivates researchers?</i>	6
<i>Year of Water makes splash</i>	10
<i>Earth Day weekend activities</i>	11
<i>News and notes; events</i>	12

# Center to reflect, plan at conference July 30–31

By Mary AdamsEditor

“Sustainable Agriculture: Taking Stock, Moving Forward” will be the focus of the combination conference and tenth anniversary celebration for the Leopold Center, to be held Wednesday and Thursday, July 30 and 31, in the Scheman Building at the Iowa State Center in Ames.

Education coordinator and conference chair Rich Pirog reports that the event will have something for everyone—lively keynote speakers, tours of sustainable agriculture research sites, farmer-led roundtable and panel discussions, and posters describing Center-funded research and education from the past ten years. There will also be a salute to the Year of Water, which marks a decade of Iowa water protection efforts. Center staff have been working with a citizen advisory committee to develop a program that reflects the Center’s first decade of accomplishments, while acknowledging that much work remains to be done in sustainable agriculture.

Keynote speakers for the event include Paul Johnson, chief of the Natural Resource and Conservation Service and one of the architects of the Iowa Groundwater Protection Act that created the Leopold Center; Pat Boddy, well-known for her work on Iowa Public Television; and George Hallberg, director of the University of Iowa Hygienic Laboratory. Concurrent sessions will include information about work by the Center’s past and present research issue teams on agroecology, biological controls, manure, social issues, grazing and forages, weeds, and cropping systems. The first evening’s program (open to the public) will feature Nina Leopold Bradley (daughter of Aldo Leopold) and Michael Carey, Iowa farmer and poet.

The closing session of the conference (also open to the public) will address “Planting the Future: Aldo



**The views of Aldo Leopold—the conservationist, educator, and ecologist for whom the Center was named—will be discussed at the conference.**

Leopold and Henry A. Wallace on Agriculture’s Next Century.” This panel discussion features John Culver, a former Iowa senator and author of a forthcoming Wallace biography; Curt Meine, a conservation biologist with the International Crane Foundation of Baraboo, Wisconsin, and noted Aldo

Leopold biographer; and David Williams, an Iowa farmer and Leopold Center Advisory Board member. They will offer their thoughts on how Aldo Leopold and Henry A. Wallace might have viewed agricultural conservation issues both today and in the next century.

A call for posters sent to the Center’s past and current project investigators has also been posted on the Center’s World Wide Web page. Questions about posters should go to Mary Adams at (515) 294-5832. More information about the conference, including the final program, will appear in the summer 1997 issue of the Leopold Letter. Registration brochures will be mailed out in early summer. Questions about the conference program should be directed to Rich Pirog at (515) 294-3711.



LEOPOLD CENTER

## Leopold Center Advisory Board

Robert Sayre, chair, University of Iowa, Iowa City  
Leon Burmeister, vice-chair, University of Iowa  
Kurt Johnson, member-at-large, farmer, Iowa  
Farm Bureau Association, Audubon

Shirley Danskin-White, Iowa Department of  
Agriculture and Land Stewardship, Des  
Moines

Jerald DeWitt, Iowa State University, Ames  
Lenore Durkee, Grinnell College, Grinnell  
Neil Hamilton, Drake University, Des Moines  
Don Paulin, Iowa Department of Natural  
Resources, Des Moines

Sally Puttmann, farmer, District Soil and Water  
Conservation Commissioner, Kingsley

**Jerry Stockdale**, University of Northern Iowa,  
Cedar Falls

Allen Trenkle, Iowa State University, Ames  
Paul Whitson, University of Northern Iowa,  
Cedar Falls

David Williams, farmer, Villisca  
Wendy Wintersteen, Iowa State University, Ames

### Ex-officio members

Kurt Johnson, farmer, Iowa Farm Bureau  
Association, Audubon

Paul Mugge, farmer, Practical Farmers of Iowa,  
Sutherland

Jim Penney, Ames, and Craig Struve, Calumet,  
Agribusiness Association of Iowa

Marvin Shirley, farmer, Iowa Farmers Union,  
Minburn

The Leopold Letter is also available via World Wide Web:  
URL: <http://www.ag.iastate.edu/centers/leopold/Leopold.html>

Leopold Letter  
ISSN 1065-2116

## Leopold Center Staff

Director  
Dennis Keeney

Education Coordinator  
Richard Pirog

Research Coordinator  
Jeri L. Neal

Editors  
Mary Adams  
Elizabeth Weber

Account Specialist  
Ken Anderson

Associate Director  
Jim Swan

Associate Director  
Mike Duffy

Communications  
Specialist  
E. Anne Larson

Secretaries  
April Franksain  
John Lane

The Leopold Center for Sustainable Agriculture seeks to identify and reduce adverse socioeconomic and environmental impacts of farming practices, develop profitable farming systems that conserve natural resources, and create educational programs with the ISU Extension Service. It was founded by the 1987 Iowa Groundwater Protection Act.

The Leopold Letter is available free from the Leopold Center at 209 Curtiss Hall, Iowa State University, Ames, Iowa 50011-1050; (515) 294-3711.

Editor: Elizabeth Weber



# Family farms can weather storms of change

Every Midwesterner has blizzard memories. For some, a big blizzard slows life down and provides time to reflect, know the family, help friends and neighbors in distress, and marvel at nature's power. But not all such memories are pleasant. I remember a blizzard that kept me at my parents' home on the night I planned to propose to my wife; another that stranded me with other travelers for two days on a drive from Des Moines to Ames; and an April Fools' storm that shut down the University of Wisconsin for the first time in ages.

On a farm, blizzards are not happy times. Strong storms add stress to caring for livestock. They can be isolating, even life threatening. Of course, no other way of life is so affected by weather as farming. And few other occupations assume so many risks—but then again, few others offer so many rewards.

My most memorable blizzard occurred the day before the family farm auction—the final act that converted my past into cold dollars. It was still “my” farm, even though I had left it years ago to advance my career through studies at Iowa State University and the University of Wisconsin. “My” farm, because of the years of loving the land and sweating and toiling beside my father—years that enabled me to leave while he continued to provide some support during my schooling, but during which his health failed to the point that he no longer could withstand the physical and emotional stress of farming.

Now “my” farm was to go on

the auction block: the equipment, the tools, and hardest of all, the animals. It was important to my mother and father that this sale go well, as they would have little else to fall back on once they left.

But nature was to intervene, as it often does in farming. The auction was set for March 1, the standard date for farm auctions in preparation for the traditional April 1 moving date. The blizzard was foreordained for Febru-

and livestock that constituted a typical Midwest farm operation passed to others, and the farm began its slow waltz to obscurity. It never again operated as a real family farm.

I have driven past the farm since, but it no longer really exists. Several years after the auction, the barn—a classic tiled structure with a view from the hayloft that paralleled any in the world—went by way of another fierce storm, perhaps one of many

tornadoes that crossed this high place in southern Polk County. The outbuildings decayed more slowly.

The house, a combination of an abandoned school and some creative add-ons, finally was bulldozed just after we stopped by on our way to my 38th Runnells High School reunion. Yet the land, the farm pond, the terraces, and general field outlines remained, testimony that the moderate to highly erodible land could be

farmed sustainably.

“My” farm was part of the Marybelle watershed, one of the first Soil Conservation Service (SCS) watershed demonstration areas in the state in 1947. With help from Iowa State College Extension and Polk County, SCS used the site to demonstrate gully control, pond building, contouring, terracing, grassed waterways, and other soil conservation practices. It was also the site of the 1949 National Soil Conservation Field Day and Plowing Match sponsored in part by WHO radio and spearheaded by renowned agricultural journalist Herb Plambeck.

Although the farm no longer



Dennis' father, Paul Keeney, in a 1949 conservation plowing match.

ary 28, and it came from the north with a vengeance. My wife Betty, our two-year-old daughter Marcia, and I struggled down to Runnells from Ames that morning in 1964 to be of what assistance we could. But there was little to do. I helped shovel out the driveway and get some parking space opened for the bidders. But they were pitifully few, and there was little competition for the goods. Prices were only about half what my father expected.

I recount this tale not to evoke sympathy but to illustrate that life is not fair. Farming encompasses many risks not present in other endeavors. In many ways a unique enterprise in our society, farming involves people intimately. That day, the many tools

## FARMS WEATHER CHANGE

(continued on page 8)



# Natural product evaluated for efficiency in deworming sheep

By Mary Adams  
Editor

*While use of DE seemed to promote lower fecal egg counts in both years' trials, statistical analysis did not confirm any real differences.*

In organic production circles, diatomaceous earth (DE) has long been touted as an effective parasiticide for sheep. Unfortunately the buzz has been merely anecdotal; there was no solid, scientific evidence to support this belief. Now Dr. Gary Osweiler and Dr. Thomas Carson of the Iowa State University Veterinary Diagnostic Laboratory have conducted a Leopold Center-funded study that provides some answers about the efficacy of DE in controlling deadly gastrointestinal nematodes (GIN) that can sap the strength and vigor of lambs. If DE can be successfully employed against the parasites, producers may be able to forego use of synthetic parasiticides.

The usual regimen for parasite management in an organic operation includes rotational grazing, drylot feeding, and immunization. Because this program has been only partially successful in controlling parasites, DE would constitute another, possibly more powerful weapon in the farmers' arsenal.

This information is critical because the National Organic Standards Board (NOSB) is currently considering how to regulate production inputs for organic agriculture. If sheep producers are allowed to continue to use synthetic dewormers, consumers may question the legitimacy of organic production's claims as a low-chemical input system. If the NOSB bans or severely limits the use of synthetic parasiticides, organic producers may be forced

to rely on DE without knowing if it can truly provide the help they need to keep their flocks parasite-free. If their sheep suffer from serious losses to parasites, the producers will also face economic distress. In addition, the long-term environmental safety of avermectins (a widely used group of livestock dewormers) has been recently questioned.

In their first 66-day pasture trial testing the effectiveness of DE as a parasite deterrent, Osweiler and Carson used a group of 24 lambs. The sheep were kept in four treatment pastures with buffer strips between them and separate water tanks to help minimize the possibility of cross-infestation. The fields were moderately infected with larval parasites.

The sheep were fed a commercially prepared lamb diet to which 5 percent DE was added. (DE can be dusty and sometimes separates from grain mixes, so the researchers administered the feed in pelleted form.) The lambs were fed in individual parallel stalls, and the same stalls were used to collect blood and fecal samples for analysis. The effects of the DE treatment were determined by growth rate, packed cell volume, hemoglobin, total serum protein, and periodic egg and worm counts.

Even though the lambs were tested and found clean before beginning the study, all of them displayed parasite infestations within one month. The researchers speculated that this was probably due to existing infections that the lambs had acquired from the ewes. (To combat this, in the next round of testing the investigators dewormed the lambs with ivermectin before starting the DE diet in order to eliminate prior infections. This started all the experimental lambs with similar parasite loads and allowed the best expression of any potential anti-parasite effects of DE.)

Based on the first year of trials, there was a trend toward slightly improved performance for animals being fed DE. The lambs on the DE diet gained slightly more weight than their





*Oswelier used sheep from the ISU teaching flock in the DE grazing trials. The whiteface crossbred lambs were fed in individual wire chutes to ensure that each lamb received the proper ration of feed.*

counterparts in the control group. The fecal parasite egg counts started out at a similar level in both groups, but were less in the DE group at the end of the trial. The figures measuring blood health appeared to be slightly improved for the DE group.

In the study's second year, using a larger test group of 48 lambs, Oswelier doubled the proportion of DE in the lambs' feed. The results were similar to the previous year's trial. The control group of untreated sheep developed higher fecal egg counts than the DE-treated sheep, with a maximum difference in egg counts approximately 50 percent greater than the group receiving DE supplements.

But, as Oswelier notes, while use of DE seemed to promote lower fecal egg counts in both years' trials, statistical analysis did not confirm any real differences. In addition, there was no indication of improved blood values (packed cell volume, hemoglobin, total serum protein) or rate of weight gain for the DE-treated lambs in either set of trials.

The bottom line, according to Oswelier's findings, is that while a full organic parasite control program carried out over several years could include DE, under the conditions of this study there was not clear evidence that DE alone significantly reduces the amount of parasitic infection, nor does it improve performance in grazing lambs. So environmentally concerned sheep producers may have to look elsewhere for a "magic bullet" to curb parasite depredations on their herds.

### ***The Scoop on DE***

What is diatomaceous earth, how does it work, and why is it an appealing substitute for the synthetic parasiticides currently used to deworm livestock? DE is a natural product consisting of sedimentary skeletal remains of diatoms. This material is composed primarily of silica, aluminum, and iron oxide. (Diatoms are minute planktonic unicellular or colonial algae with silicified skeletons.) Diatomaceous earth is used as a water filter material and as an anti-caking ingredient (at a 2 percent rate) in feeds. DE has been observed to control insect infestations in grain, possibly because the sharp edges of the diatoms cause internal or external physical damage to the insects. Oswelier and Carson wanted to determine if the same abrasive action would work against GIN in sheep.

A discussion with Dr. Richard Levins

# Sustainable ag research: who will do it

By Elizabeth Weber

Editor

---

*Dr. Richard A. Levins, professor and extension agricultural economist at the University of Minnesota, has spent 20 years working with farmers and agricultural policy makers. His research has addressed various environmental aspects of farming, including the policies relating to land ownership, the interrelationship of farm and rural community economies, and livestock manure management. He currently coordinates planning and development for the University's 7,500-acre Experiment Station in Rosemount, Minnesota.*

*Levins met with agriculture faculty and Leopold Center staff on the Iowa State University campus recently. Their discussion focused on results of a faculty survey in the University of Minnesota's College of Agricultural, Food and Environmental Sciences. The survey questioned what motivates faculty to conduct research in sustainable agriculture.*

---

*In choosing their research topics, faculty were influenced very little by departmental and college priorities.*

How do university faculty choose their research projects and topics? And what does it take to steer them in the direction of sustainable agriculture?

To answer these questions, Levins directed a survey of 66 faculty in the University of Minnesota's College of Agricultural, Food and Environmental Sciences. With strong support from the college's dean, he investigated, among other things, whether encouraging research in new areas is primarily a matter of providing funding, or whether other factors play a significant role.

The survey included personal interviews with each participant, "some of whom were hostile even to the suggestion that the research they're doing is not 'sustainable agriculture'," Levins said. "Yet people want to keep on

doing what they're doing. While virtually all participants considered their own work totally consistent with the American Society of Agronomy's definition of sustainable agriculture that we provided, about ten percent of those rated their own attitudes toward sustainable agriculture as negative, and nearly half described their feelings about it as 'mixed'."

"People were influenced very little by departmental and college priorities," Levins noted. "The influence of state and national policy was minor to moderate; potential for journal publication and colleagues' interest mattered somewhat more."

According to Levins, personal interest and funding were cited by the majority of respondents as major influences in their choice of research topic.

He conceded that even among his own colleagues, the prevailing attitude toward sustainable agriculture can be described as a "love/hate relationship. Some faculty regard it as a fringe activity, yet at the same time they're quick to claim that their research falls under the 'sustainable agriculture' rubric."

Levins' survey tested the assumption that the reason people do *not* do sustainable agriculture research is because they don't have the money. The survey results suggested it is not that simple, he said: the group he polled *was* influenced by the prospect of funding, but only to the extent that the money could be spent in ways that were aligned with their personal interests.

In general, results indicated that changing the focus and content of faculty research is a difficult, complex process.



**During his Iowa visit, Levins also spoke at the Practical Farmers of Iowa annual meeting. (Leopold Center photo)**

# it, and what will it take?

## Discussion

After summarizing his findings\*, Levins solicited the perspectives of ISU faculty, whose observations generally reinforced the University of Minnesota survey findings. John Pesek, ISU Distinguished Professor Emeritus in agronomy, suggested that to encourage sustainable agriculture research, “Agriculture deans need to employ sustainable agriculture-oriented faculty in the first place. What drives people is the tenure system.”

Leopold Center director Dennis Keeney agreed: “This academic culture has been in place for 100 years.”

Center associate director Mike Duffy then posed the question, “Would results differ if we administered this survey to ISU faculty?” The group agreed that institutions such as ISU, which have a separate unit (for example, the Leopold Center) dedicated to sustainable agriculture research, have a better chance of shifting the status quo toward a greater proportion of that kind of work. Keeney said that an autonomous unit’s ability to disseminate research results quickly to a broad constituency bolsters its host university’s sustainable agriculture reputation. Pesek agreed, adding, “The Leopold Center was created *for*, not *by*, the University.”

Pesek also pointed out that some projects—for example, basic research in food science—seem neutral in terms of most definitions of sustainable agriculture. “Yet a panel of farmers reviewing a set of projects will have a very different perception [than that of academics] about what is sustainable.” His next observation about ISU agricultural researchers again echoed the Minnesota survey results: “Faculty do not want to be told what to do.”

Keeney suggested that the Leopold Center is “still a major experiment” in terms of how it influences the direction of agricultural research at a land-grant university.

Levins agreed but pointed out that the

Center, like many other sustainable agriculture research organizations, is nevertheless using a very traditional method to influence faculty: namely, offering money to do certain types of projects.

Levins cautioned against criticizing academic researchers too broadly for not caring about the problems of the state. “Many Minnesota faculty want to do something about the livestock manure odor problem, for example. They’re motivated by a sincere concern. The question is whether they’re reacting to issues arising from the practice of conventional agriculture or whether they’re doing true sustainable agriculture research—which may require them to investigate visionary solutions, things that aren’t even occurring out there in the field yet,” he said.

Levins used himself as an example: “Years ago, in Maryland, I served on a task force to help struggling tobacco farmers find international markets for their product. I was sincerely motivated to help solve a short-term problem for these farmers. In retrospect, I wish I’d spent my time instead helping them learn to grow another crop entirely.”

Now, as coordinator of his institution’s Rosemount experiment station, results of Levins’ survey have taken on added relevance as he endeavors to answer his own question: “What kind of research makes sense on 12 square miles? I really want the faculty to be effectively involved,” he says.

## SUSTAINABLE AG RESEARCH

(continued on page 9)



*“The Leopold Center was created for, not by, the University.”*

*—John Pesek, Iowa State University Distinguished Professor Emeritus in agronomy (Leopold Center photo)*

\*For a printed summary of Levins’ survey results, contact the Minnesota Institute for Sustainable Agriculture at (612) 625-8235 to request MISA publication 96-01.



## SMOTHER CROPS

(continued from page 1)

for their potential in a smother crop system. Species studied include Caliph, Santiago, and Sava medics; berseem clover; and a short-cycling brassica.

### Management studied

The researchers set up field experiments at the Dordt College Agricultural Stewardship Center near Sioux Center and ISU's agronomy farm near Ames. The crops were planted in corn and soybeans; weed suppression and yield effects were then evaluated. A second series of field experiments near Ames, using 'Sava' medic as the smother plant, is assessing the effects of timing of smother plant establishment, spatial arrangement, rotary hoe incorporation, and planting depth.

Progress in the first two years of the project has been informative, if slow. The wet springs of 1995 and 1996 offered challenges in getting crops established. Buhler says they are "learning as much from [their] failures" as they would have from resounding success. What this particular research project illustrates just as clearly is the long and circuitous route that agricultural research sometimes travels before finding its way into a farmer's toolbox.

Some of Buhler's research results show that:

- Spring-seeded smother plants do indeed suppress weeds, but they also can suppress crop yields.
- Soil fertility and management practices affect cover crop establishment. The Ames site, under continuous corn and soybeans for a number of years, showed difficulties establishing the smother plants,

while the Dordt site, which uses a corn-soybean-alfalfa rotation on manured soils, had little problem with establishment.

- 'Sava' medic appears to be one of the most promising smother crops because of its short life cycle and weak allelopathic properties (it doesn't exude toxins that inhibit crop growth).
- Successfully growing two crops (smother and primary) presents a management challenge.

### What's next?

As data from the second year of the project become available this spring, Buhler's team is reviewing and refocusing their efforts for the project's third year. One issue has emerged as a result of the difficulty in establishing the smother crops on long-term corn/soybean ground—the role of the soil environment. "We may find that all of the factors may fit together in a very scale-neutral way of understanding weed management," Buhler comments. "These are very complex interactions, and [developing a system] won't happen overnight."

Buhler says that while interest is growing in the smother crop research, it is still too early for large-scale field testing. After the researchers determine what characteristics a smother plant must have, they'll need to interest plant breeders in developing the seed source.

Buhler is confident, however, that as weeds continue to "outsmart" scientists and modern herbicides, the demand for weed management options will increase.



In research conducted near Ames, USDA-ARS weed scientists are planting 'Sava' medic as a smother crop using a rotary hoe at various time intervals. Timing of smother plant establishment appears to be key in developing a successful smother crop weed management system. (Photo courtesy of National Soil Tilth Laboratory)

## FARMS WEATHER CHANGE

(continued from page 3)

exists as an economic unit, in my heart and memory, it lives forever. Looking back, I think we could have made enough income to support two families, though it would have been hard work, especially given my father's declining health. More land may have been needed—but would expansion have survived the 1980s crisis?

Today, addressing questions like this drives my work at the Leopold Center. There is hope for family farms. But the business of farming is now far more important to policy makers and global corporations than is the culture of farming. Less and less attention is given to developing profitable enterprises that farmers can use to keep smaller farms viable. The Leopold Center does not accept this trend as

inevitable. We'll continue working diligently with others to keep the blizzards of change from sending family farms into obscurity.

Dennis R. Keeney



# Swine System Options conference serves as catalyst for change

By Rich Pirog  
Education coordinator

In February 1996, some 230 people, including more than 160 Iowa swine producers and local ag business representatives, gathered in Ames for the "Swine System Options for Iowa" conference. This conference, sponsored by the Leopold Center, the Iowa Pork Industry Center, ISU Extension, the Iowa Pork Producers Association, and the Beginning Farmers Center, provided information on alternative production systems for Iowa producers with small to medium-sized swine operations. An end-of-day survey indicated that attendees had learned a great deal at the conference and were

**The Leopold Center continues to support research and education on alternative swine systems. More than 60 producers attended a December 1996 conference in Amana sponsored by ISU Extension and the Leopold Center. Fact sheets on alternative swine systems, such as outdoor and Swedish production approaches, are also being developed.**

considering changes in their swine operations as a result.

Ten months later, the *Leopold Letter* reported on the growing number of hooped buildings constructed on Iowa hog farms during 1996. That story described the changes that several producers, including conference attendees, had made in their operations (vol. 8, no. 4, Winter 1996; p. 4).

Talking with those producers prompted the Center to conduct a survey to determine what changes others have made in their operations since the event. The survey targeted approximately 140 of the swine

producers who attended the conference. Fifty percent responded, providing comments which suggest that the conference was a real catalyst for change—a noteworthy fact, given that the majority of respondents have been in the hog business for a long time (75 percent have raised hogs for ten or more years).

## Some highlights:

- Sixty-five percent of respondents indicated that the conference played a role in changing swine management and production practices on their farms.
- Several respondents remarked (as they had on the first conference survey) that the conference gave them information and support to compete in the swine industry.
- Fourteen percent of respondents remodeled existing structures after the conference.
- Over one-third of respondents built new structures after the conference; most of these were hooped buildings for finishing.
- Thirty-three hooped buildings were built by respondents in the ten months following the conference. Other respondents indicated that they will construct hooped buildings in spring 1997.
- More than 20 percent of respondents changed market strategies after the conference.
- The respondents' primary sources of information on alternative hog production are sustainable agriculture organizations (such as the Leopold Center and Practical Farmers of Iowa), magazines, and ISU Extension.
- Many respondents want more research and education programs on alternative hog production systems.

**Ed. note:** For a copy of the survey summary, contact Rich Pirog at (515) 294-1854.

## SUSTAINABLE AG RESEARCH

(continued from page 7)

Following the discussion, Levins answered some additional questions:

### What can agriculture college deans do to encourage sustainable agriculture research?

"They can't overhaul the [tenure] system, but they *can* provide a supportive environment. The survey showed that funding is a necessary—but not necessarily sufficient—condition to motivate the faculty. Other incentives include professional awards, salary, autonomy, prestige among colleagues, secretarial support, office space, and graduate students—tangible rewards that in the aggregate can matter greatly to many faculty members."

### Even with standard definitions, is part of the problem that "sustainable agriculture" is a loaded term?

"Yes. People believe very strongly in their own definitions. That nearly half of the survey respondents described their attitudes toward sustainable agriculture as "mixed" is at least partly attributable to the difficulty in arriving at a commonly agreed-on, commonly understood definition."

*(On the difficulties of monitoring research to assure that it is sustainability-oriented, and on the role of user groups in guiding these investigations)*

### How do you balance the need for basic and applied research in the sustainable agriculture realm?

"A university researcher has to be able to do work for constituencies that don't currently exist—but that would be helped by the work if they did. Every sustainable agriculture researcher should begin by imagining what a true sustainable agriculture really looks like. The research and education should then be geared toward that vision. It isn't always possible to do that for a large user group.

"But [in terms of faculty choosing their research projects by a relatively autonomous or academic process] there's a fine line between independence and irrelevance."

# Year of Water makes a splash at kickoff

Iowa's Year of Water made its official debut at the Jan. 22 kickoff program and reception held at the Iowa State Historical Building. More than 150 people attended the event, which featured a program outlining the past and future of the Iowa Groundwater Protection Act and displays from 25 of the participating groups in the year-long celebration.



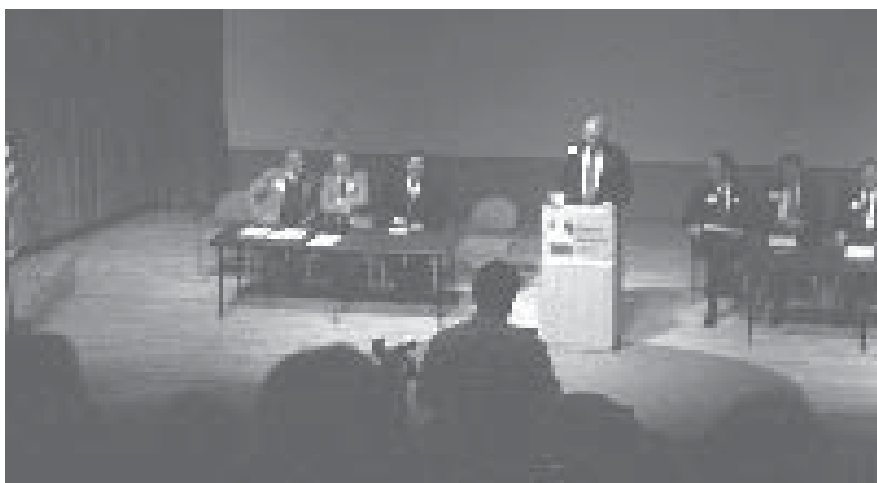
During the hour-long program, Iowa leaders recounted the successes the act has engendered and the challenges it has yet to address. Governor Terry Branstad, who signed the Groundwater Protection Act into law in 1987, noted that the law had addressed a broad range of issues impacting water quality, including agricultural industrial waste and underground storage tanks. He also lauded Iowa's farmers' part in implementing soil and water conservation practices on their farms. "We look to them as conscientious stewards of our land and water," Branstad said.

David Osterberg of Mount Vernon, one of the bill's original authors, challenged the audience to address current dangers to groundwater. He singled out agricultural drainage wells as the top priority, citing information showing a heavy concentration of ADWs in north central Iowa near large hog confinement operations. "We should close 20 of the most dangerous ag drainage wells," Osterberg asserted.

Iowa State University president Martin Jischke, one of three state university officials present at the event, said that the Year of Water not only notes the past but is a "celebration of the future." He used the words of Iowa-born naturalist Aldo Leopold, for whom the Center is named, in describing the challenges in water protection that lie ahead: "Humans



(Upper left) The Year of Water display welcomed guests at the kickoff event; (far left) a groundwater model shows how surface flow affects aquifers; (left) Center director Dennis Keeney talks with Senator Patty Judge and other guests. (Leopold Center photos)



(Left) Farm broadcaster Keith Kirkpatrick acted as emcee for the kickoff program; (above) Governor Terry Branstad visits with one of the volunteers staffing a display.

are a part of nature, not an adversary.” Jischke added, “ISU is quite proud to have the Leopold Center on our campus . . . Aldo Leopold had the right idea many years ago and I think it is still the right idea today.”

The program also featured Don Paulin, Iowa Department of Natural Resources; Robert Koob, University of Northern Iowa president; David Skorton, University of Iowa vice president for research; and Jan James, an ISU student and national FFA speech award winner.

Following the program, 25 groups representing a range of environmental, agricultural, governmental, and volunteer groups staffed displays and visited with those in attendance. Several student groups were among those sharing their ideas and activities. Musical entertainment was provided by the Daugherty/McPartland jazz group with support from the Iowa Arts Council. Commemorative Year of Water rain gauges and bottles of Iowa-bottled Colfax Water were presented to attendees as well.

Dennis Keeney, Leopold Center director, clarified the purpose of the Year of Water: “There is no hint in this celebration that the job of Iowa water protection is done. We are celebrating the fact that Iowans recognize the importance of Iowa water and are taking steps to protect it.”

## Year of Water Proclamation

**WHEREAS** 1997 will mark the 10th anniversary of Iowa’s historic groundwater protection act establishing measures to improve and protect groundwater quality and to manage substances which pose health and safety hazards; and

**WHEREAS** the programs established by this act have addressed management of agricultural activities, solid waste landfills, underground storage tanks, and commercial and household hazardous waste toward enhancement of Iowa’s environment; and

**WHEREAS** the initiatives established by this act have been augmented by a vast array of voluntary efforts to protect Iowa stream, lake, watershed, and groundwater resources by nonprofit organizations, government, business, and concerned citizens; and

**WHEREAS** the Iowa Groundwater Protection Act and other voluntary activities have led to education, restoration, and enhancement activities that are looked to as models by the rest of the nation; and

**WHEREAS** Iowans’ pride in their water resources is a legacy for generations to come:

**NOW, THEREFORE**, I, Terry E. Branstad, Governor of the State of Iowa, do hereby proclaim January 1 through December 31, 1997 as the IOWA YEAR OF WATER to be marked by celebrations, educational opportunities, and sharing of successful programs among Iowa organizations and Citizens.

Signed Dec. 19, 1996 by Governor Terry E. Branstad

## Burlington, Iowa celebrates “Year of Water”—and more

**By Sharon Kaufman, Naturalist  
Starr’s Cave Nature Center,  
Burlington**

In Burlington, 1997 is proving to be an exciting year. Along with recognition of the Iowa Year of Water and the annual Earth Day observance, Burlington is celebrating the 110th birthday of its native son, Aldo Leopold. The combination of these three celebrations will create an interesting and diverse series of special events.

Aldo Leopold is best known for his conservation classic *A Sand County Almanac*. Although he wrote the book while living in Wisconsin, historians and conservationists agree that the roots of this literary classic lie in Burlington. The combination of a supportive family, an incredibly rich natural world to explore, and opportunities to hone his writing skills helped Leopold become the person who many consider

“The Father of Modern Conservation.”

According to a City of Burlington proclamation, Earth Day will be celebrated with an all-day educational event in Crapo Park on Saturday, April 26. Events prior to that date are being designed to reacquaint the public with Leopold and his work, with the Leopold Center for Sustainable Agriculture, and with the area’s natural wonders that so captivated young Leopold. Planned activities include student essay and poster contests, a nature art show, school science fairs, a special series of articles for local newspapers, and several public programs on the life and local influences of Leopold.

Two special events are being planned specifically to share insights into Leopold’s understanding and joy of the natural world. Author and musician Douglas Wood will perform Friday evening, April 25, at 7:30 p.m. at Starr’s Cave Nature Center. Wood’s

special performance will include readings and songs for which he is nationally known, and which were inspired by Leopold’s lessons.

Highlighting Burlington’s Earth Day celebration will be a special program, *Reminiscences*, by Nina Leopold Bradley, daughter of Aldo Leopold. This program will be presented in the Leopold Loft of Starr’s Cave Nature Center at 2:00 p.m. on Saturday, April 26. Both programs are free, open to the public, and co-sponsored by the Leopold Center for Sustainable Agriculture.

**Ed. note:** For more information on Burlington’s Earth Day, Leopold’s 110th birthday, and Year of Water events, contact Sharon Kaufman at Starr’s Cave Nature Center, 11627 Starr’s Cave Road, Burlington, IA 52601; (319) 753-5808.

## News and notes

**Robert Sayre**, professor of English at the University of Iowa, was recently elected chair of the Leopold Center Advisory Board. Vice chair is **Leon Burmeister**, professor and interim head of preventive medicine and environmental health at the University of Iowa. **Kurt Johnson**, Audubon farmer and Iowa Farm Bureau Association representative, will be member-at-large.

**Dennis R. Keeney**, director of the Leopold Center since its inception in 1988, received the 1997 Sustainable Agriculture Achievement Award from the Practical Farmers of Iowa (PFI) at their Jan. 3 annual meeting in Ames.

The award is presented each year to an individual who has advanced profitable, environmentally sound agriculture in Iowa. PFI is a nonprofit Iowa-based farmer organization widely known for its sustainable agriculture research and education programs.

## Calendar of Events

**March 11–15** Organic Crop Improvement Association (OCIA) International General Membership Meeting, Cedar Rapids. For more information contact Regis Zweigart, President OCIA Chapter 1 of Iowa at (319) 454-6358.

**June 3–July 22** Master Conservationist Program (eight sessions meeting Tuesdays from 6–10 p.m.). For more information contact Mary Unsworth-Born at the Story County Conservation Board (515) 232-2516.

**March 18** Iowa Compost Procurement and Use Workshop, at six Iowa Communications Network (ICN) sites. For more info call Garth W. Frable (515) 281-5105 or e-mail gfrable@max.state.ia.us

**June 15–19** Iowa Agricultural Youth Institute, Ames. Contact Shannon Fesenmeyer (515) 281-6444.

**April 25–26** Earth Day/Aldo Leopold/Year of Water celebration Burlington. Contact Sharon Kaufman (319) 753-5808 (see story page 11).

**July 30–31** Leopold Center 10th Anniversary Conference, Scheman Continuing Education Building, Iowa State University, Ames. Contact Rich Pirog (515) 294-1854 (see story page 2).



LEOPOLD CENTER  
FOR SUSTAINABLE AGRICULTURE  
IOWA STATE UNIVERSITY  
209 CURTISS HALL  
AMES, IOWA 50011-1050

LEOPOLD CENTER